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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,387	07/07/2004	Yongyong Xu		4386

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EXAMINER

BAE, JI H

ART UNIT	PAPER NUMBER
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2115

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/710,387

Applicant(s)

XU, YONGYONG

Examiner

Ji H. Bae

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the claim recites a method of allowing a mobile device having an original operating system (host OS) to execute another operating system (guest OS) within said host OS "without *loading* and rebooting" [claim 1, lines 1-3]. Additionally, the claim recites that in place execution comprises code that can "execute directly in flash memory of the device and need not be copied to system RAM of the device" [lines 5-7]. Both limitations appear to contradict applicant's specification.

Regarding the loading step, in paragraph 31 and 32 of applicant's originally filed specification, applicant teaches that a boot loader is required to read, unpack, load, and start the guest OS image. Based on applicant's own teaching, there is clearly a loading step required before the guest OS can be executed.

Regarding the in place execution, Fig. 1 shows both a DRAM and a Flash RAM, with the guest OS image clearly being stored in the DRAM. The language of claim 1 regarding "system RAM" is unclear, since the specification teaches that there exist two RAMs in the system – a Flash RAM and a DRAM. Furthermore, the limitation recites that the guest OS code is executed directly from Flash memory without copying to system RAM. Yet Fig. 1 clearly shows that the guest OS image does not even reside in Flash memory.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, applicant has recited a method of "allowing" a mobile device to execute a second operating system. Applicant's language makes the intended scope of the claim unclear, since "allowing" a mobile device to run a second operating system covers anything and everything that does not prohibit the mobile device from doing so. This is also in conflict with the remainder of applicant's claim, which recites specific steps for *causing* a mobile device to execute a second operating system.

Regarding claim 2, applicant's parenthetical insertion of "data and code" after "memories" renders the limitation unclear. Data and/or code stored in a memory is distinct from the memory itself. It is unclear how the MMU could manipulate memory protection attributes for the data and code stored in the memory.

Regarding claim 3, applicant recites a step of moving memories (data and code) of the host to "top" of physical memory. It is unclear what constitutes the "top" of physical memory.

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Claim 4 contains several typographical errors – “further comp” (line 3), “of more” (line 6).

Regarding claim 6, it is unclear what makes a register “special”.

Regarding claim 16, the claim recites that a code segment is appended with a jump table containing multiple jump instructions to allow “inter code-segment invocation”. The claim further recites “pre-linking said each inter code-segment invocation in each said code segments of guest OS to a said jump instruction in the said jump table”. It is unclear what is being claimed. Specifically, it is unclear whether an “inter code-segment *invocation*” is an action being performed (since the aforementioned appending step “allows” the invocation), or a code/instruction in the code segment (since it is pre-linked to a jump instruction).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Griffin et al., U.S. Patent Application Publication No. 2002/0194241 A1, in view of Ohno et al., U.S. Patent No. 6,715,016 B1.

Regarding claim 1, Griffin teaches a method of allowing a mobile device having a host OS to execute a guest OS, comprising the steps of [Fig. 3]:

preparing an image of the guest OS to be executed within said host OS [paragraph 8, guest OS runs as a virtual machine process on host OS];

packaging said image of guest OS into a native application of said host OS [paragraph 8, virtual machine];

running said native application from said host OS to execute said guest OS, and exiting said guest OS and returning back to said host OS [Fig. 3, steps 305-307, paragraph 42].

Griffin does not teach reserving memories used by the host OS to preserve current state and data of the host OS.

Ohno teaches a computer system for running multiple operating systems that saves the state of the current OS before switching to a second OS [col. 2, lines 4-11].

It would have been obvious to one of ordinary skill in the art to combine the teachings of Griffin and Ohno by modifying Griffin to save the state of the host OS before switching to the guest OS, as taught by Ohno. Griffin teaches that the guest OS runs as a virtual machine process within the host OS, and that it is desirable to increase security and isolation between the host OS and guest OS [paragraphs 2-4]. The teachings of Ohno would improve the system of Griffin by providing additional isolation between the memory spaces, resulting in the avoidance of data destruction [col. 2, lines 20-27].

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ji H. Bae whose telephone number is 571-272-7181. The examiner can normally be reached on Monday-Friday, 10 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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